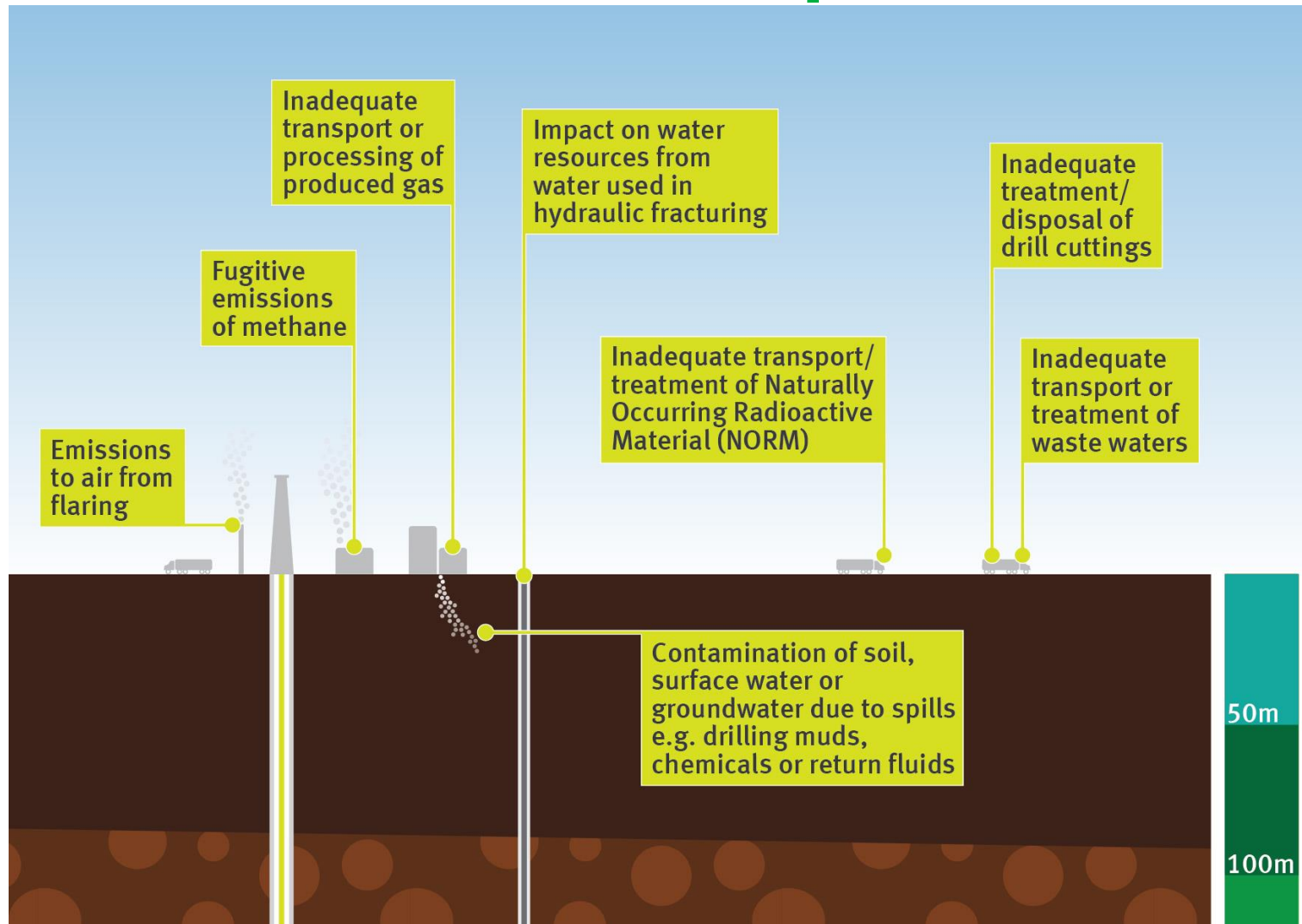




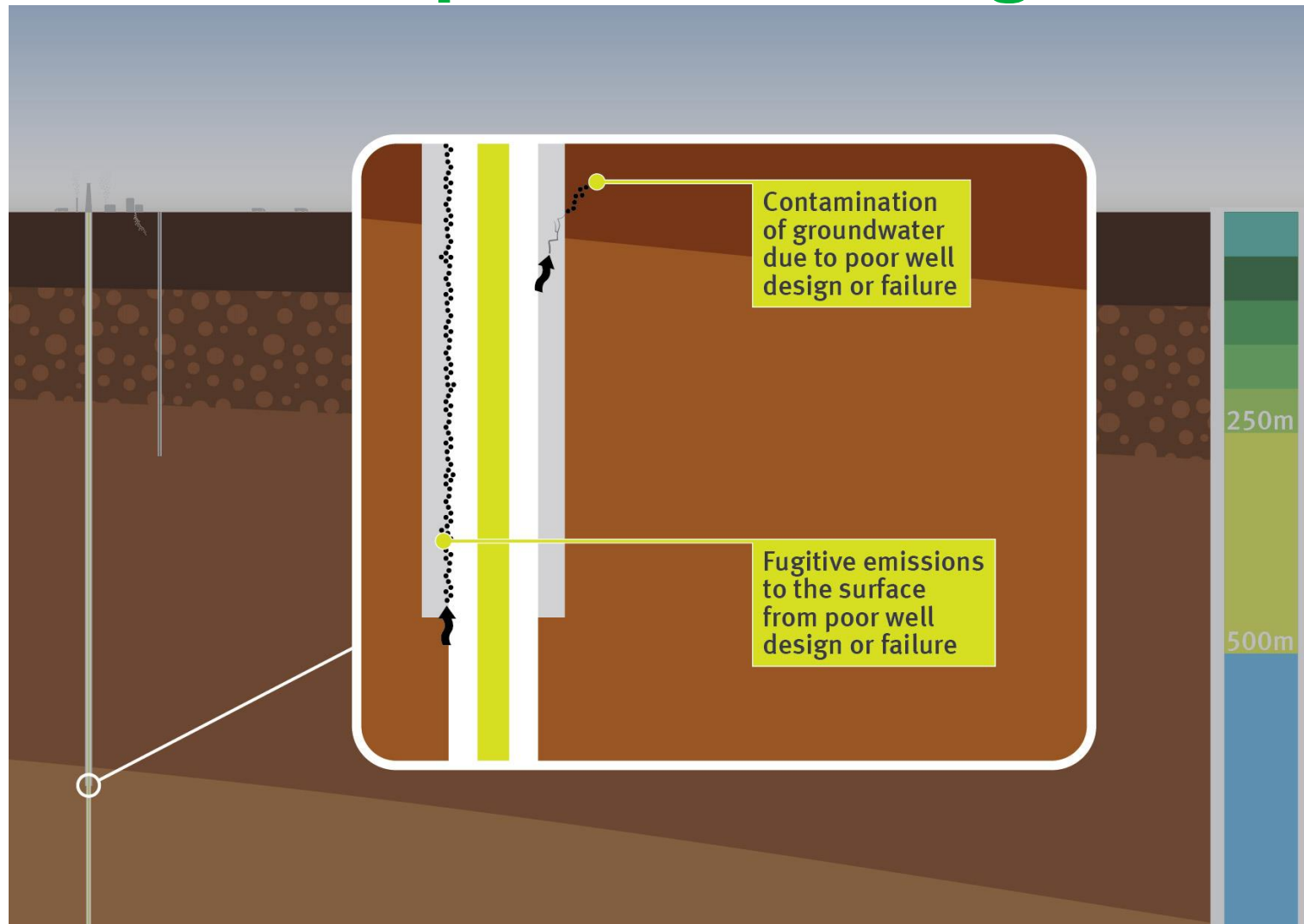
Onshore Oil and Gas: Regulatory framework for groundwater protection

Name	Laura Ward
Job title	Groundwater Technical Specialist
Date	26 th July 2018

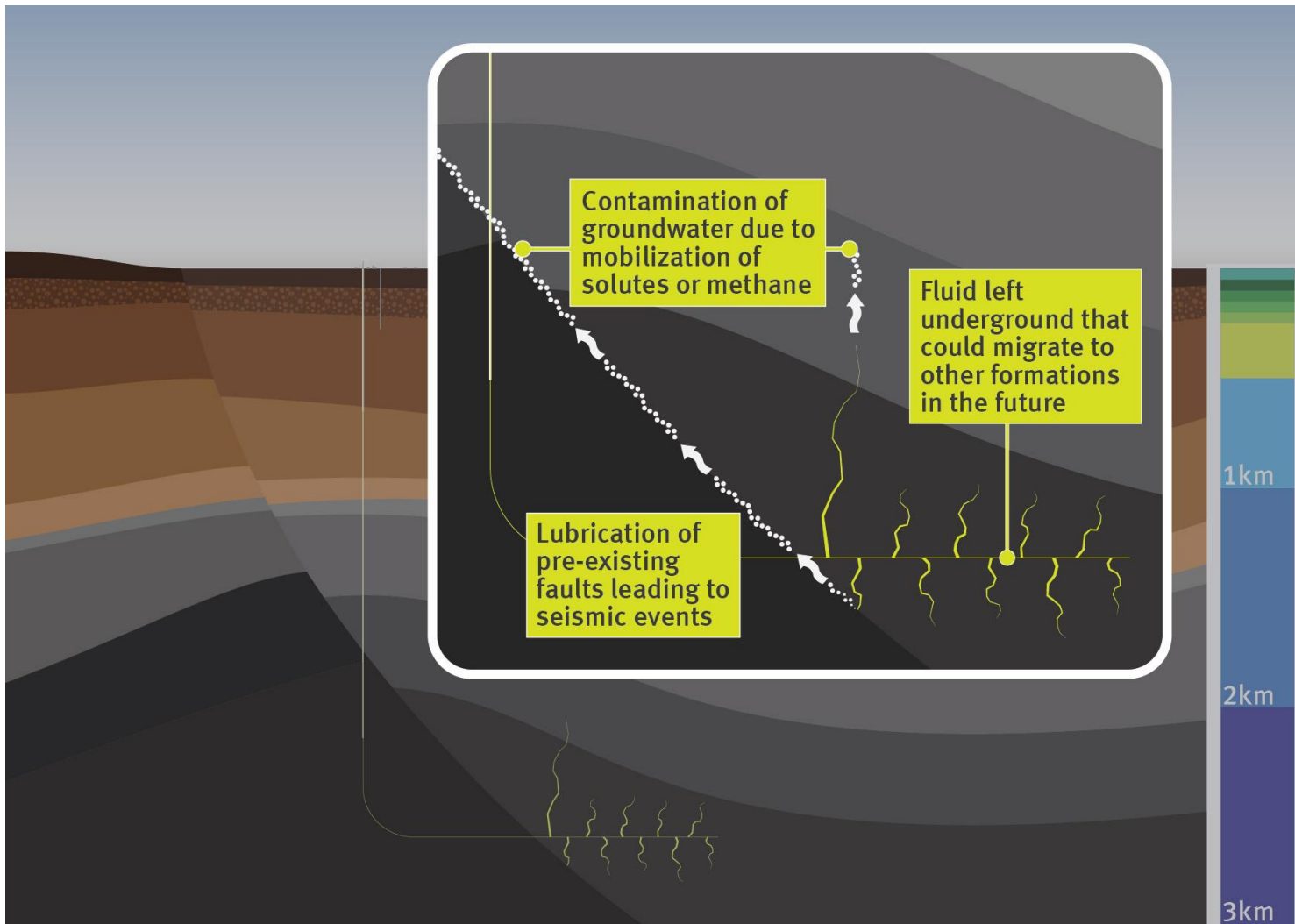
Risks from Surface Operations



Risks from poor well design



Risks from Hydraulic Fracturing



Infrastructure Act 2015

Hydraulic Fracturing should not take place within 1000m of the surface

Protected Areas at surface

- Groundwater Source Protection Zone 1
- National Parks
- The Broads
- AONBs
- World Heritage Sites
- SSSI
- RAMSAR
- Natura 2000

Protected Areas at 1200m depth

- Groundwater Source Protection Zone 1
- National Parks
- The Broads
- AONBs
- World Heritage Sites

Regulations - England

- Environmental Permitting Regulations 2016
 - Installation Activities
 - Mining Waste Activities
 - Radioactive Substances Activities
 - Water Discharge Activities
 - Groundwater Activities
 - Flood Risk Activity Permit
- Water Resources Act 1991
 - Notice to construct a boring for the purposes of searching for or extracting minerals
 - Water abstraction licences
- Control of Major Accident Hazards Regulations 2015 (COMAH)
 - Notification to the competent authority

Mining Wastes

- Environmental permit for the management of extractive wastes, including:
 - Drill cuttings and spent drilling muds
 - Flowback fluids, including proppants,
 - Waste gases, including fugitive emissions
 - Waste well stimulation fluids left underground
- Waste Management Plan needs to:
 - Characterise waste and describe risks,
 - Set out mitigations, in line with waste hierarchy
 - Disclose chemicals
 - Set out monitoring and closure plans
- “Flowback” fluid can be re-used in well if properly treated.



Source: Betsy Bicknell, Ricardo-AEA

Environmental Permit for a Groundwater Activity

We regulate activities which have the potential to pollute groundwater under Schedule 22 of the Environmental Permitting Regulations 2016.

A groundwater activity is a discharge of a pollutant that;

- results in an input of a pollutant to groundwater
- might lead to an input of a pollutant to groundwater.

To support permit application:

- Groundwater monitoring (requisite surveillance)
- Hydrogeological Risk Assessment
- Sub-surface Information Plan

S199 Water Resources Act 1991

- Submit notice of intent to the EA to construct or extend a boring for the purpose of searching for or extracting minerals.
- EA can request additional information
- EA can serve a conservation notice.

Onshore Oil and Gas Sector Guidance

The screenshot shows the GOV.UK website interface. At the top, there is a search bar and navigation links for Departments, Worldwide, How government works, and Get involved. Below the search bar, the page title is 'Onshore oil and gas exploration and extraction: environmental permits'. The main content area states: 'The environmental permits and permissions you need for onshore oil and gas operations in England.' It also includes publication and update information: 'Published 17 August 2016', 'Last updated 14 November 2016 — see all updates', and 'From: Environment Agency'. A blue bar indicates 'Applies to: England'. On the right, there is a 'Related content' section with a link to 'Business and the environment'. Below this, the 'Documents' section features a PDF icon and the title 'Onshore oil and gas sector guidance', with details: 'Ref: LIT 10495', 'PDF, 1.39MB, 64 pages', and a note: 'This file may not be suitable for users of assistive technology. Request an accessible format.' The 'Details' section states: 'Oil and gas companies, their service companies and consultants should use this guidance to understand:'

OOG sector guidance is available on GOV.UK

